

Soil Characterization Site Exposure – Auger Method Field Guide

Task

Use an auger to expose a soil profile for characterization measurements and define the site.

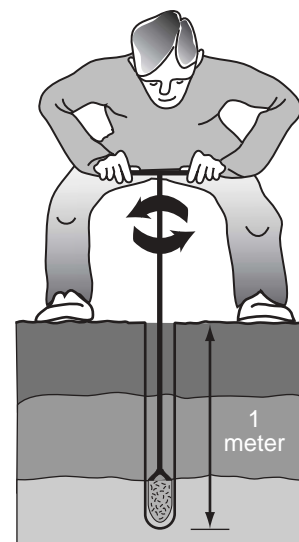
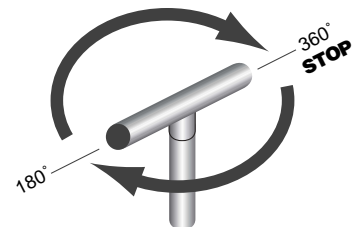
What You Need

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> Soil auger | <input type="checkbox"/> Meter Stick |
| <input type="checkbox"/> Clinometer | <input type="checkbox"/> Local information about your site |
| <input type="checkbox"/> Compass | <input type="checkbox"/> Plastic bags to lay out the soil profile |
| <input type="checkbox"/> GPS receiver | <input type="checkbox"/> Soil Characterization Site Definition Sheet |

In the Field

Exposing the Soil Profile

1. Identify a location where an auger can be used to expose a soil profile.
2. Spread a plastic sheet, tarp, board, etc. on the ground next to where the first hole will be dug and where the sun will shine on the profile.
3. Remove the surface vegetation.
4. Place the auger at the top of the soil and turn the auger one complete revolution (360°) to dig into the ground. Do not turn the auger more than one complete circle (360°) to prevent the soil from being compacted.
5. Remove the auger with the sample from the hole and hold the auger over the plastic sheet, etc.
6. Transfer the sample from the auger to the plastic sheet, etc. as gently as possible. Place the top of this sample just below the bottom of the previous sample.
7. Measure the depth of the hole. Adjust the sample on the plastic bag, tarp, or board so that its bottom is no further from the top of the soil profile than this depth.
8. Record the depths at which there are differences in soil properties. (This will help to determine the top and bottom depths of the horizons for soil characterization.)



Defining the Soil Characterization Site

1. Give the site a name or number (e.g., SCS-01). Record this on the *Soil Characterization Site Definition Sheet*.
2. Measure the latitude, longitude, and elevation of the site using the *GPS Protocol*. Record this information on the *Site Definition Sheet*.
3. Identify the steepest slope that crosses the area of exposed soil.
 - a. Two students (A and B) are needed whose eyes are at about the same height to measure the slope. One other student (C) is needed to be the “reader” and “recorder”.
 - b. Student A holds the clinometer and stands down slope while student B walks to the opposite side of the hole. Students A and B should be about 30 m apart (or as far apart as easily possible). Student C should stand next to student A.
 - c. Looking through the clinometer, Student A sites the eye level of Student B. Student C reads the angle of slope on the clinometer in degrees, and records this reading on the *Site Definition Sheet*.
4. Identify the aspect of the steepest slope:
 - a. Face up the steepest slope across the exposed soil area.
 - b. Hold the compass in your hand so that the red arrow is lined up with the North position on the compass.
 - c. Read the number on the edge of the compass housing (which can range from 0 to 360).
 - d. Record this value on the *Site Definition Sheet*.
5. Record “Auger” as the method used to expose the soil profile.
6. Record whether the site is on or off school grounds.
7. Record a description of the site location. (Near the Soil Moisture Study Site, Near the Soil Moisture and Atmospheric Study Sites, Near the Atmosphere Study Site, In the Biology Study Site, Other)
8. Describe and record the position on the landscape where the site is found. (Summit, Side Slope, Depression, Large Flat Area, Streambank)
9. Describe and record the cover type of the site (Bare Soil, Rocks, Grass, Shrubs, Trees, or Other).
10. Describe and record the type of parent material from which the soil was formed at the site (Bedrock, Organic Material, Construction Material, Marine, Lake, Stream, Wind, Glaciers, Volcanoes, or Loose materials on slope moved by gravity).
11. Describe and record the land use at the site (urban, agricultural, recreation, wilderness, other)
12. Measure and record the distance (up to 50 m) of the site from major features (e.g., buildings, power poles, roads, etc.).
13. Describe and record any other distinguishing characteristics of this site.

